

In the Claims

1-22 (canceled).

23 (new). A chimeric protein comprising:

- a) a recycling domain capable of binding a human cell surface receptor and formed by an Exocytosis Domain and an Endocytosis Domain; and
- b) a protein domain binding an Extracellular Therapeutic Target.

24 (new). The chimeric protein of claim 23, wherein the human cell surface receptor is human Transferrin receptor and the Endocytosis Domain is the alpha1-alpha2 domain of human HFE protein or human deltaN-Lactoferrin.

25 (new). The chimeric protein of claim 24, wherein the Exocytosis Domain is the alpha3 domain of human HFE protein.

26 (new). The chimeric protein of claim 25, wherein the amino acid sequence comprises SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, or SEQ ID NO: 7.

27 (new). The chimeric protein of claim 23, wherein the protein domain binds an Extracellular Therapeutic Target selected from: a cytokine, a chemokine, a hormone, a growth factor, an immunoglobulin, a glycolipid, a glycosaminoglycan, a nucleic acid, a viral protein, a bacterial protein, or a synthetic organic molecule.

28 (new). The chimeric protein of claim 23, wherein the protein domain binding the Extracellular Therapeutic Target is selected from: an extracellular region of a membrane-bound protein, a secreted protein, a viral protein, an antigen binding domain of an antibody, or one or more selected domain of such protein sequences.

29 (new). The chimeric protein of claim 23, further comprising an amino acid sequence of a heterologous protein, said amino acid sequence of a heterologous protein being other than the sequences of the proteins containing the Exocytosis Domain, the Endocytosis Domain, and the protein domain binding an Extracellular Therapeutic Target.

30 (new). The chimeric protein of claim 29 further comprising a heterologous signal peptide.

31 (new). The chimeric protein of claim 30, wherein said chimeric protein comprises a protein domain binding VEGF as Extracellular Therapeutic Target and the sequence corresponding to any of SEQ ID NOs: 11, 12, 13 or 14.

32 (new). The chimeric protein of claim 30, wherein said chimeric protein comprises a protein domain binding TNFalpha as Extracellular Therapeutic Target and the sequence corresponding to any of SEQ ID NOs: 16, 17, 18 or 19.

33 (new). The chimeric protein of claim 30, wherein said chimeric protein comprises a protein domain binding IL-18 as Extracellular Therapeutic Target and the sequence corresponding to any of SEQ ID NOs: 21, 22, 23 or 24.

34 (new). The chimeric protein of claim 23, wherein the Exocytosis Domain, the Endocytosis Domain, and the protein domain binding an Extracellular Therapeutic Target are active mutants of the corresponding natural sequence.

35 (new). The chimeric protein of claim 23, wherein said protein is in the form of an active fraction, precursors, salt, derivative, conjugate, or complex.

36 (new). A composition of matter comprising:

- a) an isolated DNA molecule encoding a chimeric protein comprising a recycling domain capable of binding a human cell surface receptor and formed by an Exocytosis Domain and an Endocytosis Domain; and a protein domain binding an Extracellular Therapeutic Target;
- b) expression vectors comprising a DNA molecule encoding a chimeric protein comprising a recycling domain capable of binding a human cell surface receptor and formed by an Exocytosis Domain and an Endocytosis Domain; and a protein domain binding an Extracellular Therapeutic Target, wherein expression of said DNA is under the control of a promoter;
- c) a host cell transformed with expression vectors comprising a DNA molecule encoding a chimeric protein comprising a recycling domain capable of binding a human cell surface receptor and formed by an Exocytosis Domain and an Endocytosis Domain; and a protein domain binding an Extracellular Therapeutic Target, wherein expression of said DNA is under the control of a promoter;
- d) purified preparations of a chimeric protein comprising a recycling domain capable of binding a human cell surface receptor and formed by an Exocytosis Domain and an Endocytosis Domain; and a protein domain binding an Extracellular Therapeutic Target;
- e) a pharmaceutical composition comprising a recycling domain capable of binding a human cell surface receptor and formed by an Exocytosis Domain and an Endocytosis Domain; and a protein domain binding an Extracellular Therapeutic Target; or
- f) a pharmaceutical composition comprising a host cell transformed with expression vectors comprising a DNA molecule encoding a chimeric protein comprising a recycling domain capable of binding a human cell surface receptor and formed by an Exocytosis Domain and an Endocytosis Domain; and a protein domain binding an Extracellular Therapeutic Target, wherein expression of said DNA is under the control of a promoter.

37 (new). A method for the treatment or prevention of a disease, comprising the administration of an effective amount of a chimeric protein comprising a recycling domain capable of binding a human cell surface receptor and formed by an Exocytosis Domain and an Endocytosis Domain; and a protein domain binding an Extracellular Therapeutic Target or a host cell transformed with expression vectors comprising a DNA molecule encoding a chimeric protein comprising a recycling domain capable of binding a human cell surface receptor and formed by an Exocytosis Domain and an Endocytosis Domain; and a protein domain binding an Extracellular Therapeutic Target to an individual.